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| 10/675,399   | 09/30/2003  | Christopher Midgley  | NTK-006.01          | 6490             |
| 25181  | 7590        | 10/03/2005           | EXAMINER            |                  |
| FOLEY HOAG, LLP<br>PATENT GROUP, WORLD TRADE CENTER WEST<br>155 SEAPORT BLVD<br>BOSTON, MA 02110 |             |                      | LE, UYEN T          |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2163                |                  |

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/675,399

Applicant(s)

MIDGLEY ET AL.

Examiner

Uyen T. Le

Art Unit

2163

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-60 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-60 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 13Dec04 & 16Jun05.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

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## **DETAILED ACTION**

### ***Oath/Declaration***

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

It does not identify the mailing address of each inventor. A mailing address is an address at which an inventor customarily receives his or her mail and may be either a home or business address. The mailing address should include the ZIP Code designation. The mailing address may be provided in an application data sheet or a supplemental oath or declaration. See 37 CFR 1.63(c) and 37 CFR 1.76.

It does not identify the city and either state or foreign country of residence of each inventor. The residence information may be provided on either on an application data sheet or supplemental oath or declaration.

It does not identify the date on which the inventors signed the oath or declaration.

### ***Abstract***

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract is objected to because of the terminology "disclosed".

***Specification***

3. The disclosure is objected to because of the following informalities: information has not been updated for related applications.

Appropriate correction is required.

***Claim Objections***

4. Claims 16, 18, 46, 58 are objected to because of the following informalities: claim 16, line 7, claim 18, line 9, claim 46, line 6, claim 58, line 6,--with—has to be inserted after “associated” for the sentence to be grammatically correct.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 29-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention because:

- it is not clear how “version time” differs from “storage time” at claim 29
- “wherein coalescing” at claim 31 lacks antecedent basis.

Art rejection is applied to claims 29-32 as best understood in light of the rejection under 35 U.S.C. 112, second paragraph discussed above.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 7-12, 15, 37-42, 45, 49-54, 57 are rejected under 35 U.S.C. 102(b) as being anticipated by Zollinger et al (US 5,999,947).

Regarding claim 1, Zollinger discloses a method for backing up one or more data files (see the abstract, Figures 1-7). The claimed “detecting changed locations in the one or more data files” reads on the fact that the method of Zollinger detects changes in tables (see Figure 5). Clearly each changed table is a location in a data file. The claimed “at a storage time, storing the contents of the changed locations” is met when Zollinger shows the time a client requests synchronization (see Figure 6). The claimed “associating the stored content with the storage time, the changed locations and one or more file identifiers identifying the one or more data files” is met when Zollinger shows the current table and associated sequential version number and time the synchronization request is made (see Figure 4).

Regarding claim 2, Zollinger discloses the storage time is based on a time interval when Zollinger shows that the client request is intermittent (see the abstract).

Regarding claims 3, 4, Zollinger discloses generating a baseline image of a file prior to detecting changed locations when Zollinger shows the base table (see step 90, Figure 5).

Regarding claim 7, the claimed dynamically detecting the changed locations in the one or more data files is met when Zollinger shows that a current table receives change events (see step 74, Figure 5).

Regarding claim 8, Zollinger discloses generating a base line of at least one or more data files and thereafter dynamically detecting the changed locations when Zollinger shows the base table, reference table and current table (see step 90, Figure 5).

Regarding claim 9, Zollinger discloses iteratively returning to dynamically detecting the changed locations to the one or more data files when Zollinger shows that the method detects changes and copies current table to base table and reference table (step 90, Figure 5)

Regarding claim 10, Zollinger discloses selecting at least one memory to store the content when Zollinger shows storing different versions (see Figure 5).

Regarding claim 11, Zayas teaches the concept of selecting a memory distinct from a previously selected memory associated with a prior storage time when Zayas shows different versions of a table are stored (see Figure 4).

Regarding claim 12, Zollinger discloses iteratively returning to detecting changed locations when Zollinger shows that the method detects subsequent changes to a table (see step 82, Figure 5).

Regarding claim 15, Zollinger discloses using the stored contents to create a version of a selected one of the one or more data files (see steps 84, 86, Figure 5).

Claims 37-42, 45, 49-54, 57 correspond to the computer program product and system for performing the method of claims 1, 2, 7, 10-12, 15, thus are rejected for the same reasons discussed in claims 1, 2, 7, 10-12, 15 above.

7. Claims 1-13, 15-19, 24, 28-32, 37-43, 45-55, 57-60 are rejected under 35 U.S.C. 102(a), (e) as being anticipated by Midgley et al (US 6,460,055) provided by the applicant.

Regarding claim 1, Midgley discloses all the claimed subject matter including “detecting changed locations in the one or more data files” (see column 2, lines 17-30, Figure 7), “at a storage time, storing the contents of the changed locations” (see Figure 3), “associating the stored content with the storage time, the changed locations and one or more file identifiers identifying the one or more data files” (see column 2, lines 51-55).

Regarding claim 2, Midgley discloses the storage time is based on an actual time interval when Midgley shows that the file is representative of the state of the file systems at a particular time (see column 2, lines 51-55).

Regarding claims 3, 4, Midgley discloses generating a baseline image of a file prior to detecting changed locations (see column 6, lines 55-67).

Claim 5 merely reads on the fact that hashing is used on the baseline image and the second image for detecting changes. The method of Midgley clearly operates in that manner for identifying changes to a data file (see column 2, line 51- column 3, line 10).

Regarding claim 6, Midgley discloses CRC procedures (see column 2, line 67-column 3, line1).

Regarding claim 7, Midgley discloses dynamically detecting the changed locations in one or more data files (see the abstract).

Claim 8 is met by the fact that the method of Midgley generates a baseline image and dynamically detects changes to the baseline image (see the abstract).

Regarding claim 10, Midgley discloses selecting at least one memory to store contents (see column 9, lines 28-38).

Claims 9, 12 are met when Midgley shows dynamically monitoring changes to a file (see column 2, lines 16-30).

Regarding claim 11, the selected memory has to be distinct from a previously selected memory since each memory is storing a version of changes (see column 2, lines 5-15).

Regarding claim 13, Midgley discloses generating one or more indexes as claimed (see Figure 2).

Regarding claim 15, Midgley discloses using the stored contents to create a version of a selected one of the one or more data files (see column 22, lines 24-34).

Claim 16 is met by the fact that indexes are created for accessing different versions of a data file (see column 10, lines 25-35, column 18, lines 23-41). Furthermore, different versions have to be created by combining identified stored contents with data from a baseline image associated with the selected data file as claimed.



Regarding claim 17, Midgley discloses determining that the changed locations are the same for two or more different storage times and identifying the stored contents of the changed locations associated with the latest of the two or more different storage times (see column 21, line 63- column 22, line 15).

Claim 18 merely differs from claim 16 by adding “receiving from a first server a request to create a version of a selected one of the one or more data files” and “providing the identified stored contents and respective changed locations to the first server”. Midgley teaches such limitations (see column 12, lines 49-60).

Regarding claim 19, Midgley discloses at the first server combining the identified stored contents with data from a baseline image associated with the selected data file (see column 12, lines 60-66).

Regarding claim 24, Midgley discloses “at a first time storing a baseline image of one or more data files” (see the abstract), “detecting changed locations in the one or more data files” (see column 13, lines 62-67), “at a storage time, storing the contents of the changed locations” (see column 14, lines 1-21). The claimed “generating one or more indexes...respective changed locations” is met when Midgley shows generating one or more indexes (see Figure 2).

Claim 28 essentially recites the limitations of claim 18, thus is rejected for the same reasons stated in claim 18 above.

Regarding claim 29, Midgley discloses associating the version with a version time and one or more storage times (see column 18, lines 22-34).

Regarding claim 30, Midgley discloses "writing to the version the baseline image associated with the data file" (see column 12, lines 18-24), "the stored contents of the respective changed locations" (see column 12, lines 32-47), "contents of changed...version time" (see column 12, lines 49-66).

Regarding claim 31, Midgley discloses iteratively coalescing two or more portions of the stored contents (see column 21, line 66- column 22, line 23).

Regarding claim 32, Midgley discloses at the first server writing to the version the baseline image associated with the data file and the stored contents of the respective changed locations (see column 12, lines 49-66).

Claim 33 essentially recites the limitations of claim 21 with the addition of "two or more different storage times", thus is rejected for the same reasons stated in claim 21 above.

Claims 34-36 recite the limitations of claims 21-23, thus are rejected for the same reasons stated in claims 21-23 above.

Claims 37-43, 45-55, 57-60 correspond to a computer program product and system for performing the method of claims 1, 2, 7, 10-13, 15, 16, 18, 19, thus are rejected for the same reasons stated in claims 1, 2, 7, 10-13, 15, 16, 18, 19 discussed above.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 14, 20-23, 25-27, 44, 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Midgley et al (US 6,460,055) provided by the applicant.

Regarding claims 14, 44, 56, although Midgley does not specifically show a first and second index as claimed, since indexing help speed up searching, it would have been obvious to one of ordinary skill in the art to include any number of indexes depending on users applications and requirements.

Regarding claims 20, 21, Midgley teaches coalescing (see column 21, line 66-column 22, line 49) and the use of indexes (see column 6, lines 2-27). Although Midgley does not specifically show coalescing two or more stored contents associated with the same file identifier and two or more different storage times or the same storage time, the respective changed locations associated with the two or more coalesced contents, one or more indexes to associated the coalesced contents, the respective coalesced changed locations, the file identifier and the same of two or more different storage time, it would have been obvious to one of ordinary skill in the art to do so depending on users requirements.

Regarding claim 22, Midgley discloses the coalescence time is based on an actual time (see column 22, lines 6-10).

Regarding claim 23, Midgley discloses the event includes an event based on an available storage capacity of a storage medium when Midgley shows buffer capacity (see column 18, lines 64-66).

Regarding claim 25, Midgley discloses recreating a version of a data file (see column 18, lines 23-42).

Claim 26 is met when Midgley shows that indexes are used to access different versions of target files (see column 10, lines 25-43) and when Midgley shows restoring a backup version (see column 10, lines 40-66).

Claim 27 is met when Midgley shows that only the most recent version of the same data is required for backup (see column 22, lines 6-9).

9. Claims 5, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zollinger et al (US 5,999,947), in view of Donoho et al (US 2002/0091779).

Regarding claim 5, although Zollinger does not specifically show using one or more data integrity procedures to generate a summary of the baseline image, it is customary to do so as shown by Donoho (see 0293). Therefore, it would have been obvious to one of ordinary skill in the art to include the claimed features while implementing the method of Zollinger in order to ensure integrity of backup files using a well-known technique.

Regarding claim 6, Donoho discloses CRC and MD5 procedures (see 0293).

10. Claims 13, 14, 16-19, 24, 28-30, 32, 43, 44, 46, 47, 48, 55, 56, 58, 59, 60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zollinger et al (US 5,999,947), in view of Steele et al (US 2003/0191737).

Regarding claim 13, although Zollinger does not specifically show generating one or more indexes to associated the stored contents, the respective storage times, the respective changed locations and the respective one or more file identifiers, it is well known in the art to use indexing to facilitate searching as shown by Steele (see the abstract). Therefore, it would have been obvious to one of ordinary skill in the art to include one or more indexes while implementing the method of Zollinger to facilitate searching.

Claim 14 merely reads on the fact that more than one index is generated. Since indexes facilitate searching, it would have been obvious to one of ordinary skill in the art to include any number of indexes depending on users requirements.

Regarding claim 16, although Zollinger does not specifically show querying one or more indexes to identify stored contents and respective changed locations as claimed, it is well known in the art as shown by Steele to use indexing to facilitate searching (see the abstract). Therefore, it would have been obvious to one of ordinary skill in the art to include the claimed features while implementing the method of Zollinger in order to quickly identify stored contents and locations. Furthermore, creating a new version clearly includes combining the identified stored contents with data from a baseline image associated with the selected data file as claimed.

Regarding claim 17, Zollinger discloses determining that the changed locations are the same for two or more different storage times and identifying the stored contents of the changed locations associated with the latest of the two or more different storage

times when Zollinger shows the method determines two versions of a table and identifies the latest version (see Figure 5).

Claim 18 merely differs from claim 16 by adding “receiving from a first server a request to create a version of a selected one of the one or more data files” and “providing the identified stored contents and respective changed locations to the first server”. Zollinger teaches such a request when Zollinger shows clients requesting and receiving synchronization (see the abstract). Note that although the request is from a client in the method of Zollinger, since a client can also serve as a server depending on its role at a specific time, it would have been obvious to one of ordinary skill in the art to make the client in the method of Zollinger a server depending on users requirements.

Claim 19 merely reads on the fact that the current table is formed by combining a reference table and changes made to the reference table (see Figure 5).

Regarding claim 24, the claimed “at a first time storing a baseline image of one or more data files” is met when Zollinger shows a reference table (see Figure 5). The claimed “detecting changed locations in the one or more data files” is met when Zollinger shows changes are detected. The claimed “at a storage time storing the contents of the changed locations” is met when Zollinger shows synchronizing on client’s request (see the abstract). Although Zollinger does not specifically show “generating one or more indexes...respective changed locations”, it is well known in the art as shown by Steele to use indexing to facilitate searching (see the abstract). Therefore, it would have been obvious to one of ordinary skill in the art to include the

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claimed features while implementing the method of Zollinger in order to quickly identify stored contents and locations.

Claim 28 essentially recites the limitations of claim 18, thus is rejected for the same reasons stated in claim 18 above.

Regarding claim 29, Zollinger discloses associating the version with a version time and storage time (see item 26, Figure 1).

Claims 30, 32 read on the fact that the latest changes to a database table are recorded at the server using a reference table (see column 11, line 51- column 12, line 9).

Claims 43, 44, 46-48, 55, 46, 58-60 correspond to the computer program product and system for performing the method of claims 13, 14, 16, 18, 19, thus are rejected for the same reasons discussed in claims 13, 14, 16, 18, 19 above.

11. Claims 20-23, 25-27, 31, 33-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zollinger et al (US 5,999,947), further in view of Steele et al (US 2003/0191737), further in view of Midgley et al (US 6,460,055) provided by the applicant.

Regarding claims 20, 21, although Zollinger does not specifically teach coalescing and the use of index, Steele shows that it is well known in the art to use indexing to facilitate searching as shown by Steele (see the abstract). Therefore, it would have been obvious to one of ordinary skill in the art to include such features while implementing the method of Zollinger to facilitate searching. Furthermore, Midgley

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teaches coalescing (see column 21, line 66- column 22, line 49). Although Misgley does not specifically show coalescing two or more stored contents associated with the same file identifier and two or more different storage times or the same storage time, the respective changed locations associated with the two or more coalesced contents, one or more indexes to associated the coalesced contents, the respective coalesced changed locations, the file identifier and the same of two or more different storage time, it would have been obvious to one of ordinary skill in the art to do so depending on users requirements.

Regarding claim 22, Midgley further discloses the coalescence time is based on an actual time (see column 22, lines 6-10).

Regarding claim 23, Midgley further discloses the event includes an event based on an available storage capacity of a storage medium when Midgley shows buffer capacity (see column 18, lines 64-66).

Regarding claim 25, Zollinger discloses recreating a version of a data file (see column 12, lines 16-34).

Claims 26, 27 merely read on the fact that the new version includes changes made to the baseline image using one or more indexes and only the latest changes are written to the version. Steele teaches the use of indexes as discussed in claim 20 above. Furthermore, Zollinger discloses writing to the version the latest changes (see column 11, lines 40-49).

Regarding claim 31, although Zollinger and Steele do not specifically show iteratively coalescing two or more portions of the stored contents, it is well known in the



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art as shown by Midgley to do so (see column 22, lines 18-23). Since coalescing alleviate network bandwidth problems as taught by Midgley, it would have been obvious to one of ordinary skill in the art to include coalescing as claimed.

Claims 33, 34, 35, 36 essentially recite the limitations of claims 20, 21, 22, 23, thus are rejected for the same reasons stated in claims 20, 21, 22, 23 above.

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Zayas et al (US 6,560,615) teach implementing modified files list (MFL) for a storage system volume.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Uyen T. Le whose telephone number is 571-272-4021.

The examiner can normally be reached on M-F 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 571-272-4023. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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14. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

26 September 2005



UYEN LE  
PRIMARY EXAMINER